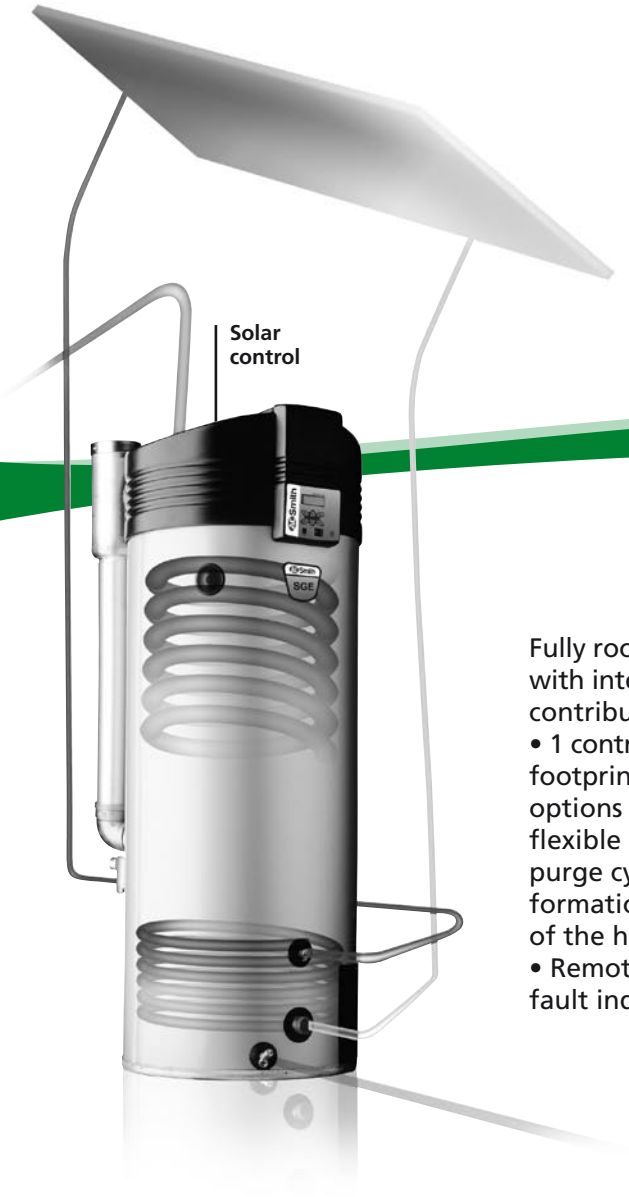
SGE

Condensing Gas - Solar Water Heater

SGE - 40/60



Fully room-sealed condensing high efficiency gas-solar water heater with integrated solar heat exchanger (95 % gross) • Maximum solar contribution through fully integrated intelligent solar controller • 1 control and display unit for the complete installation • Very small footprint because of integrated solar heat exchanger • Flexible flue options (maximum length 100 meters) • Thermocontrol for easy flexible control / fault diagnosis • Programmable for legionella purge cycle • All models suitable for natural or LP gas • Scale formation is reduced through the improved design and location of the heat exchanger • Very easy maintenance and installation • Remote control connection • Voltage-free contact for general fault indication

Innovation has a name.

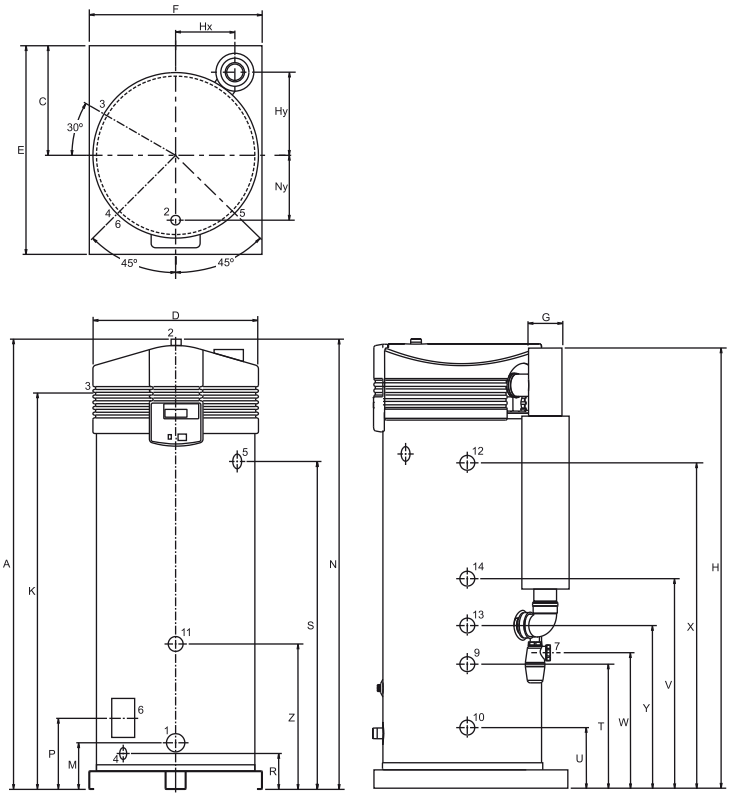
Technical specifications

		SGE 40	SGE 60
Gas data natural gas 2H (G20)			
Input*	kW	44.4	63.2
Output	kW	42.0	59.7
Inlet pressure	mbar	20	20
Burner pressure	mbar	8.0	10
Gas consumption **	m^3/h	4.2	6.0
Diameter main orifice	mm	6.30	8.70
Max. flue gas temperature	°C	80	80
Flue gas discharge	kg/h	82.3	111.1
Gas data butane 3+ (G30)			
Input*	kW	43.3	61.7
Output	kW	42.0	59.7
Inlet pressure	mbar	30	30
Burner pressure	mbar	-	-
Gas consumption **	kg/h	3.2	4.5
Diameter main orifice	mm	3.10	4.00
Max. flue gas temperature	°C	80	80
Flue gas discharge	kg/h	82.1	109.9
Gas data propane 3+ (G31)			
Input*	kW	43.5	61.8
Output	kW	42.0	59.7
Inlet pressure	mbar	30	30
Burner pressure	mbar	-	-
Gas consumption **	kg/h	3.1	4.4
Diameter main orifice	mm	4.70	6.00
Max. flue gas temperature	°C	80	80
Flue gas discharge	kg/h	83.1	108.8
Draw-off capacity			
Storage	l	370	370
Max. temperature setting	°C	80	80
T_{cold} = 10°C / T_{set} = 65°C			
30 min ΔT=44°C	l	693	718
60 min ΔT=44°C	l	1249	1302
90 min ΔT=44°C	l	1805	1886
120 min ΔT=44°C	l	2361	2470
Continuous ΔT=44°C	l/h	821	1168
Heating up time ΔT=44°C	min	15	10
30 min ΔT=50°C	l	610	632
60 min ΔT=50°C	l	1099	1146
90 min ΔT=50°C	l	1588	1659
120 min ΔT=50°C	l	2078	2173
Continuous ΔT=50°C	l/h	722	1028
Heating up time ΔT=50°C	min	17	12
30 min ΔT=55°C	l	554	574
60 min ΔT=55°C	l	999	1041
90 min ΔT=55°C	l	1444	1509
120 min ΔT=55°C	l	1889	1976
Continuous ΔT=55°C	l/h	657	934
Heating up time ΔT=55°C	min	19	13
Electrical data			
Power consumption	W	275	275
Power supply	VAC/Hz	230(-15% / +10 % VAC) / 50 (+/- 1 Hz)	
General			
Fan rotational speed at ignition	r.p.m.	4920	5040
Working speed of fan	r.p.m.	5520	6300
Pressure differential	Pa	735/705	675/645
Diameter of air restrictor	mm	28.0	34.0
Anodes	-	4	4
Maximum working pressure	bar	8	8
Shipping data			
Empty weight	kg	245	245
Maximum weight	kg	615	615
Weight incl. packaging	kg	256	256
Width packaging	mm	870	870
Height packaging	mm	2075	2075
Depth packaging	mm	945	945

* Gas data on gross value
** Gas consumption at 15°C and 1013,25 mbar

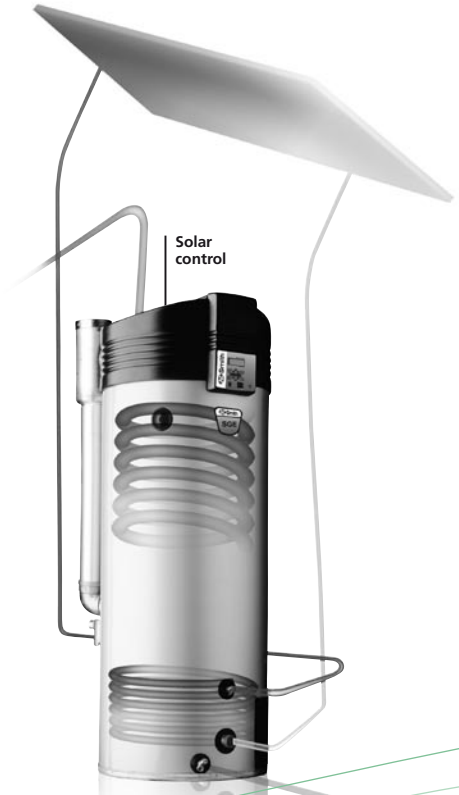
SGE

Dimensions



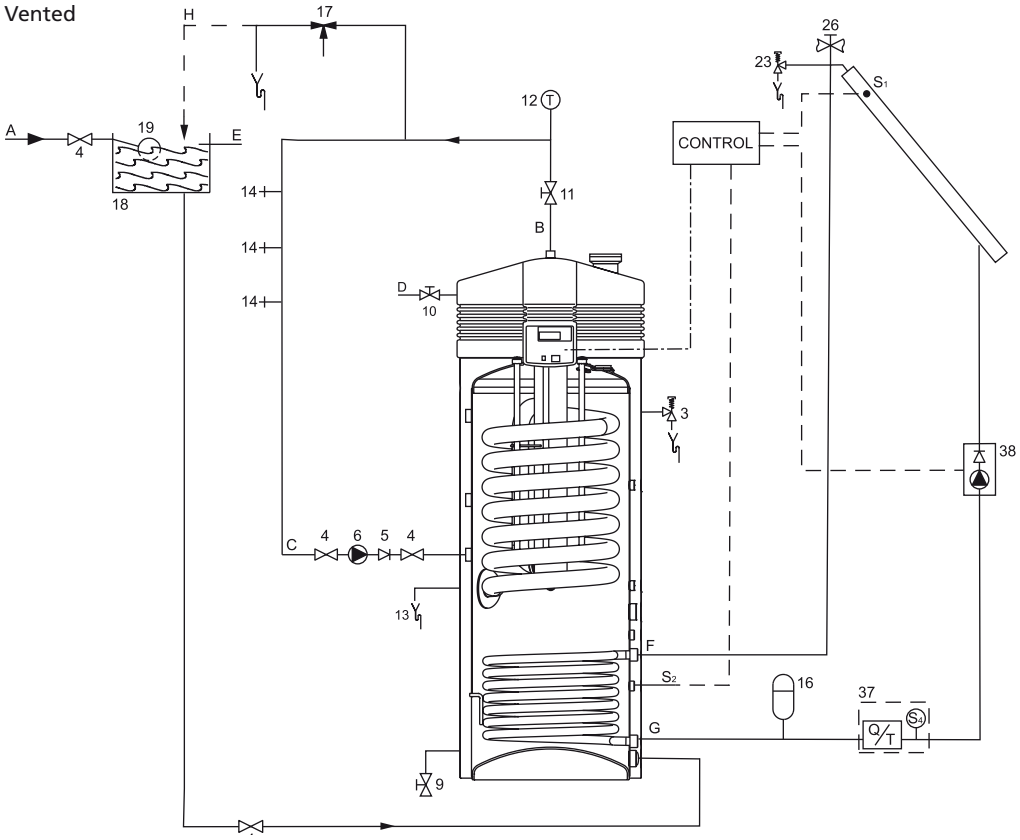
		SGE 40	SGE 60
A	Total height	2055	2055
C	Position on pallet	490	490
D	Diameter unit	705	705
E	Depth	925	925
F	Width	755	755
G	Diameter flue	100/150	100/150
H	Height flue pipe	1995	1995
Hx	X-position flue	260	260
Hy	Y-position flue	370	370
K	Height gas / burner connection	1945	1945
M	Height cold water inlet	185	185
N	Height hot water outlet	2055	2055
Ny	Y-position hot water outlet	205	205
P	Height clean out	365	365
R	Height drain valve	180	180
S	Height T&P connection	1555	1555
T	Height coil inlet	630	630
U	Height coil outlet	305	305
V	Height recirculation connection	1035	1035
W	Height condens outlet	765	765
X	Height inlet plate heat exchanger	1465	1465
Y	Height outlet plate heat exchanger	855	855
Z	Height connection electrical element	755	755
1	Cold water inlet	R1 1/2	R1 1/2
2	Hot water outlet	R1 1/2	R1 1/2
3	Gas valve connection	Rp 3/4	Rp 3/4
4	Drain valve connection	3/4"	3/4"
5	T&P connection	1-11.5 NPT	1-11.5 NPT
6	Clean out	95x70	95x70
7	Condens water connection	Rp1	Rp1
9	Connection coil inlet	Rp1	Rp1
10	Connection coil outlet	Rp1	Rp1
11	Connection electric element	R1 1/2	R1 1/2
12	Connection inlet plate heat exchanger	Rp1	Rp1
13	Connection outlet plate heat exchanger	Rp1	Rp1
14	Connection recirculation	Rp1	Rp1

On all SGE water heaters 3 years of warranty apply on the tank and 1 year warranty on all parts.



Installation diagrams

Vented

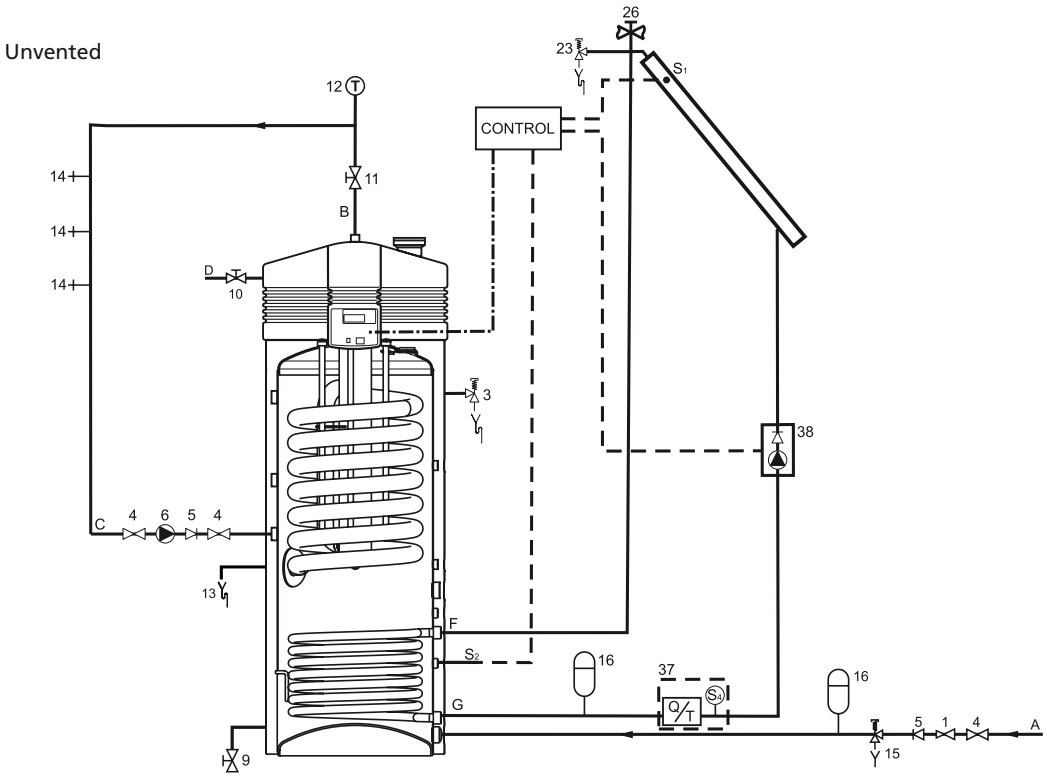


3 Temperature and pressure valve
4 Stop valve
5 Non-return valve
6 Circulation pump
9 Drain valve
10 Gas valve
11 Service valve
12 Temperature meter
13 Condensate drain
14 Hot water tap
16 Expansion vessel
17 3-way valve
18 Water tank
19 Float valve
23 P-valve
26 Air bleed
37 Flow sensor
38 Solar pump station

S1 T-collector
S2 T-tank
S4 T-return solar

A Cold water supply
B Hot water outlet
C Circulation pipe
D Gas supply
E Water overflow
F Inlet Solar Heatexchanger
G Outlet Solar Heatexchanger
H Overflow

Unvented

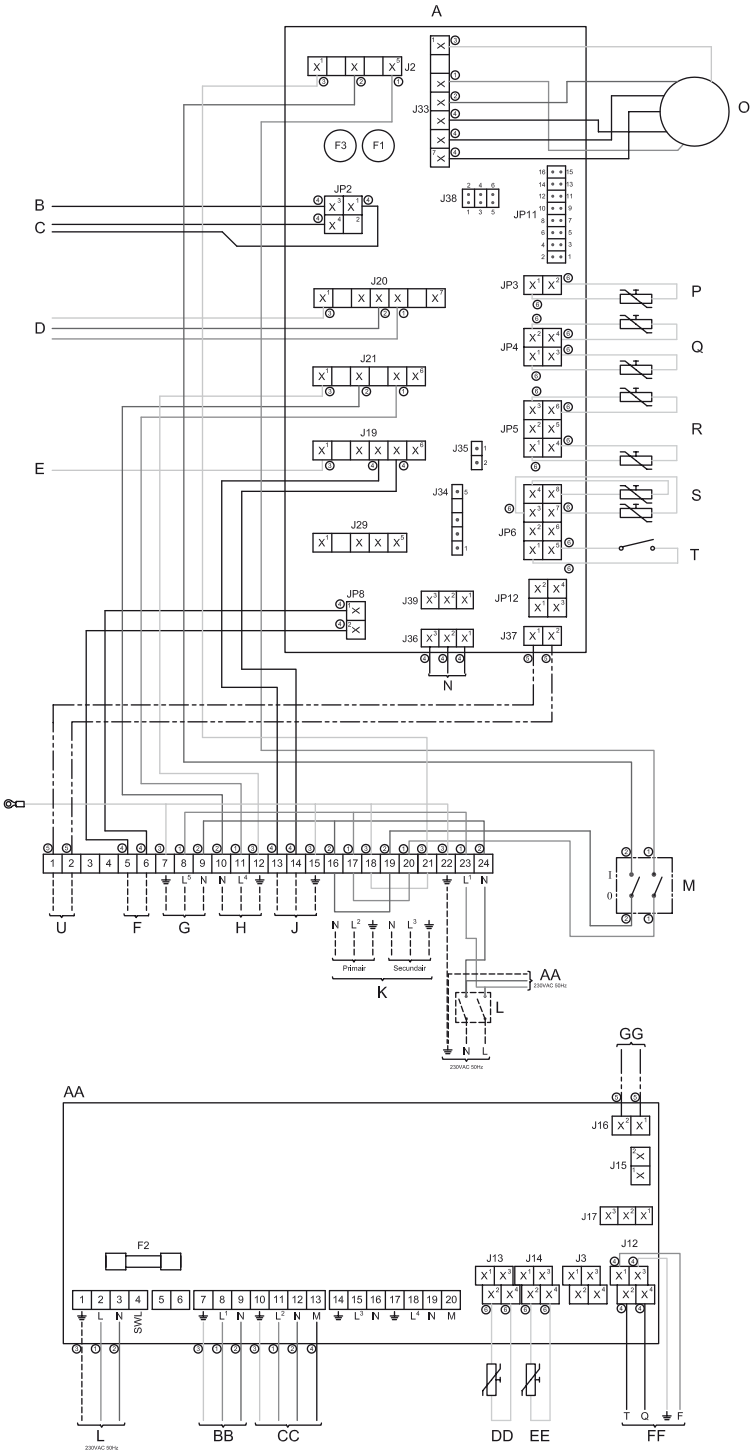


1 Pressure reducing valve
3 Temperature and pressure valve
4 Stop valve
5 Non-return valve
6 Circulation pump
9 Drain valve
10 Gas valve
11 Service valve
12 Temperature meter
13 Condensate drain
14 Hot water tap
15 Expansion valve
16 Expansion vessel
23 P-valve
26 Air bleed
37 Flow sensor
38 Solar pump station

S1 T-collector
S2 T-tank
S4 T-return solar

A Cold water supply
B Hot water outlet
C Circulation pipe
D Gas supply
F Inlet Solar Heatexchanger
G Outlet Solar Heatexchanger

Electrical diagram SGE 40-60



COMPONENTS CONTROLLER

A	Controller
B	Ionisation rod
C	Glow ignitor
D	Gas control
E	Burner earth connection
F	Extra ON-mode switch
G	Continuous pump
H	Program controlled pump
J	Extra error signal
K	Isolating transformer
L	Double-pole main switch
M	ON / OFF switch control
N	Display
O	Fan
P	Temperature sensor (T2 - bottom of tank)
Q	Dummy
R	Temperature sensor (T1 - top of tank)
S	Selection resistor
T	Pressure switch
U	Controller solar system (BUS-link)
F1	Fuse
F3	Fuse

CONNECTIONS MAIN CONTROLLER

1	X_5	BUS-link
2	X_6	
3	-	n.a
4	-	n.a
5	X_3	External ON / OFF
6	X_4	
7	⏚	Continuous pump
8	L_5	
9	N	
10	N	Program controlled pump
11	L_4	
12	⏚	
13	X_2	Extra error signal
14	X_1	
15	⏚	
16	N	Isolating transformer (primary side)
17	L_2	
18	⏚	
19	N	Isolating transformer (secundary side)
20	L_3	
21	⏚	
22	⏚	Power supply
23	L_1	
24	N	

Colour code cables
① = brown
② = blue
③ = yellow/green
④ = black
⑤ = white
⑥ = grey/beige

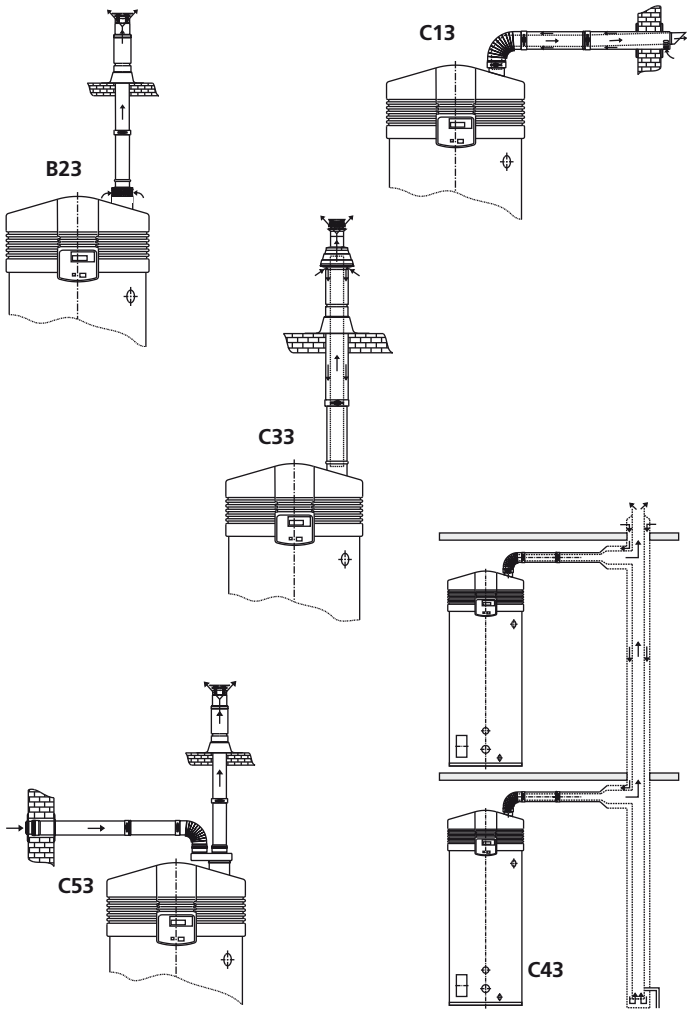
COMPONENTS SOLAR CONTROLLER

AA	Controller
BB	Pump solar system (ON / OFF)
CC	Pump solar system (modulating)
DD	Temperature sensor (S1 - solar collector)
EE	Temperature sensor (S2 - tank)
FF	Q/T-measuring (incl. temperature sensor S4 - return solar collector)
GG	Controller (BUS-link)
F2	Fuse

CONNECTIONS SOLAR CONTROLLER

1	⏚	Power supply
2	L	
3	N	
4	-	n.a.
5	-	n.a.
6	-	n.a.
7	⏚	Pump solar system (ON / OFF)
8	L_1	
9	N	
10	N	Pump solar system (modulating)
11	L_2	
12	-	
13	⏚	
14	-	n.a.
15	-	n.a.
16	-	n.a.
17	-	n.a.
18	-	n.a.
19	-	n.a.
20	-	n.a.
J3	1	n.a.
	2	n.a.
	3	n.a.
	4	n.a.
J12	1	Power supply 5V
	2	Sensor return solar collector (S4)
	3	Earth
	4	Flow signal
J13	1	n.a.
	2	Sensor solar collector (S1)
	3	n.a.
	4	Sensor solar collector (S1)
J14	1	n.a.
	2	Sensor tank (S2)
	3	n.a.
	4	Sensor tank (S2)
J15	1	n.a.
	2	n.a.
J16	1	BUS-link
	2	
J17	1	n.a.
	2	n.a.
	3	n.a.

Installation options



A SGE water heater should be installed according category B23, C13, C33, C43 or C53*.

	SGE 40	SGE 60
Concentric		
Diameter (mm)	100/150	100/150
Max. length (m)	15	15
Max. 45/90° bends	4	4
Parallel (standard diameter)		
Diameter (mm)	100	100
Max. length (m)	25	25
$L_{equivalent}$/bend 90° (m)	4,6	4,6
$L_{equivalent}$/bend 45° (m)	1,2	1,2
Parallel (larger diameter for more length)		
Diameter (mm)	130	130
Max. length (m)	100	100
$L_{equivalent}$/bend 90° (m)	2,4	2,4
$L_{equivalent}$/bend 45° (m)	1,4	1,4

* All SGE water heaters are also approved for installations where the unit is supplied without venting materials (C63).

Concentric flues

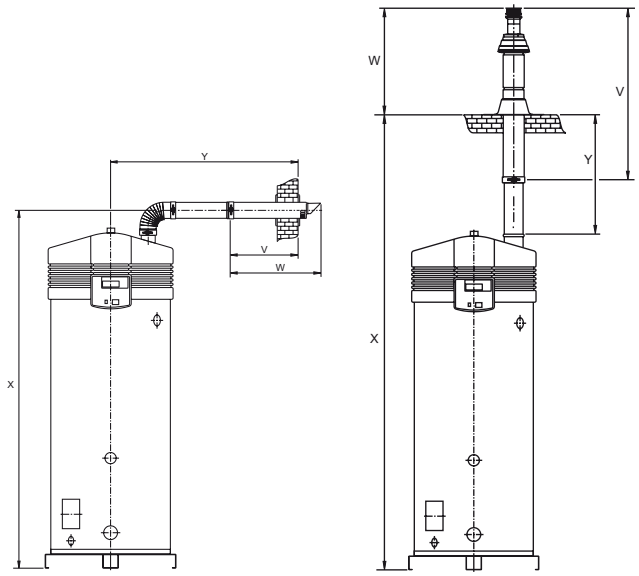
It is **not** permitted to use more than the specified number of bends, even when the duct is shorter than the maximum length. A 45° bend is equivalent to a 90° bend.

Parallel flues

- The maximum permissible length should be reduced by the equivalent length of each bend. (Note: for a parallel installation this means that 3 changes in direction amount to 6 bends (3 in the supply duct and 3 in the flue).
- The maximum length also applies if a parallel installation has different supply and flue duct lengths (B23, C53).
- Combined flues (C43) shall be fitted with a condensate drain.

Note: horizontal flue runs must be installed with a fall of at least 5 mm per metre.

Minimum space requirements



	SGE 40 Ø100/150	SGE 60 Ø100/150
Minimal space for wall duct (mm)		
V	550	550
W	790	790
X	2335	2335
Y	1475	1475
Y *	1025	1025
Minimal space for roof duct (mm)		
V	1500	1500
W	1035	1035
X	3585	3585
X **	2520	2520
Y	1415	1415
Y **	465	465

For the parts numbers of components and flue gas ducts, etc. please refer to the "Maintenance and accessories" chapter.

* Distance without concentric pipe between bend and wall duct.
** Distance without concentric pipe between appliance and roof duct.

Data subject to change INT/1108/SGE/03
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